(1) Meet the requirements of § 23.967 (a) and (b); and

(2) Withstand any vibration, inertia, and fluid loads expected in operation.

(b) *Expansion space.* Oil tank expansion space must be provided so that—

(1) Each oil tank used with a reciprocating engine has an expansion space of not less than the greater of 10 percent of the tank capacity or 0.5 gallon, and each oil tank used with a turbine engine has an expansion space of not less than 10 percent of the tank capacity; and

(2) It is impossible to fill the expansion space inadvertently with the airplane in the normal ground attitude.

(c) *Filler connection.* Each oil tank filler connection must be marked as specified in § 23.1557(c). Each recessed oil tank filler connection of an oil tank used with a turbine engine, that can retain any appreciable quantity of oil, must have provisions for fitting a drain.

(d) *Vent.* Oil tanks must be vented as follows:

(1) Each oil tank must be vented to the engine from the top part of the expansion space so that the vent connection is not covered by oil under any normal flight condition.

(2) Oil tank vents must be arranged so that condensed water vapor that might freeze and obstruct the line cannot accumulate at any point.

(3) For acrobatic category airplanes, there must be means to prevent hazardous loss of oil during acrobatic maneuvers, including short periods of inverted flight.

(e) *Outlet.* No oil tank outlet may be enclosed by any screen or guard that would reduce the flow of oil below a safe value at any operating temperature. No oil tank outlet diameter may be less than the diameter of the engine oil pump inlet. Each oil tank used with a turbine engine must have means to prevent entrance into the tank itself, or into the tank outlet, of any object that might obstruct the flow of oil through the system. There must be a shutoff valve at the outlet of each oil tank used with a turbine engine, unless the external portion of the oil system (including oil tank supports) is fireproof.

(f) *Flexible liners.* Each flexible oil tank liner must be of an acceptable kind.

(g) Each oil tank filler cap of an oil tank that is used with an engine must provide an oiltight seal.

[Doc. No. 4080, 29 FR 17955, Dec. 18, 1964, as amended by Amdt. 23–15, 39 FR 35459 Oct. 1, 1974; Amdt. 23–43, 58 FR 18973, Apr. 9, 1993; Amdt. 23–51, 61 FR 5137, Feb. 9, 1996]

§ 23.1015 Oil tank tests.

Each oil tank must be tested under § 23.965, except that—

(a) The applied pressure must be five p.s.i. for the tank construction instead of the pressures specified in § 23.965(a);

(b) For a tank with a nonmetallic liner the test fluid must be oil rather than fuel as specified in § 23.965(d), and the slosh test on a specimen liner must be conducted with the oil at 250 °F.; and

(c) For pressurized tanks used with a turbine engine, the test pressure may not be less than 5 p.s.i. plus the maximum operating pressure of the tank.

[Doc. No. 4080, 29 FR 17955, Dec. 18, 1964, as amended by Amdt. 23–15, 39 FR 35460, Oct. 1, 1974]

§ 23.1017 Oil lines and fittings.

(a) *Oil lines.* Oil lines must meet § 23.993 and must accommodate a flow of oil at a rate and pressure adequate for proper engine functioning under any normal operating condition.

(b) *Breather lines.* Breather lines must be arranged so that—

(1) Condensed water vapor or oil that might freeze and obstruct the line cannot accumulate at any point;

(2) The breather discharge will not constitute a fire hazard if foaming occurs, or cause emitted oil to strike the pilot's windshield;

(3) The breather does not discharge into the engine air induction system; and

(4) For acrobatic category airplanes, there is no excessive loss of oil from the breather during acrobatic maneuvers, including short periods of inverted flight.